

CalNex Forecast Notes - Sunday, June 20, 2010

Anticipated Flights

NOAA P3

- Sun:** SoCal -- last formal flight for CalNex
- Mon:** No Flights - packing
- Tue:** Measurements during flight to Colorado

NOAA Twin Otter

- Sun:** No Flight
- Mon:** morning & afternoon flights in Sac area

CARES DOE G-1 and NASA B200

- Sun:** No Flights
- Mon:** Sac/N SJV flights
- Tue:** afternoon flight possible
- Wed:** Flights likely

Local Features

Sunday

- high background CO & O3 descending over SoCal
- Lawrence Livermore Natl Lab still conducting prescribed grass burns (200-300 acres) when winds OK

Monday

- light NW winds clear SF emissions from Sac Valley and carry fresh Sac and SF emissions to SJV
- Lawrence Livermore Natl Lab still conducting prescribed grass burns (200-300 acres) when winds OK
- enhanced bkg O3 production in San Francisco Bay Area

Midweek

- improved flow pattern for Sac to Cool transport
- USG for O3 possible in southern SJV

Synoptic Overview for California - Adam Gerber (agerber@arb.ca.gov)

Sunday June 20

- Trough moves into nrn NV
- Transport flow turns W/NW in the north
- Onshore flow continues for the south

Monday June 21

- Weak trough remains over the west coast
- Weak onshore flow continues

Tuesday June 22

- Ridge builds Tuesday for the south

Wednesday/Thursday June 23/24

- Another trough digs in
- Onshore flow increasing North and South

Large Scale Transport Notes - Leon Dolislager (ldolisl@arb.ca.gov)

500m RDF FX 00Z 06/21 (Sun Afternoon)

High O3 air over southern SJV and SoCal. High CO over SoCal. Enhanced CO moving onshore over Northern CA. Low (0-5ppbv/day) background O3 P-L over LA&SF. Descending air over SoCal.

500m RDF FX 00Z 06/22 (Mon Afternoon)

High CO air over Central CA and into NV. Enhanced O3 moving onshore over Northern CA

Enhanced (15-20ppbv/day) background O3 P-L over SF and LA. Descending air south and east of LA. New N-S line of descending air from Oregon border through Monterey.

500m RDF FX 00Z 06/23 (Tue Afternoon)

High CO air over Southern CA. High O3 along Mexico and Arizona borders. Enhanced (15-20ppbv/day) background O3 P-L over LA. Moderate (10-15ppbv/day) background O3 P-L over SF. Descending air along Mexico and Arizona borders and along coast of NorCal.

500m RDF FX 00Z 06/24 (Wed Afternoon)

High CO air over San Joaquin Valley. High O3 in air south and east of LA. Moderate (10-15ppbv/day) background O3 P-L over SF and LA. Descending air in SoCal and along coast of Cal (strongest in central coast).

RAQMS Reverse Domain Filling forecasts will continue to be posted by 6:40am (Pacific) @ http://raqms-ops.ssec.wisc.edu/RDF_products/CalNex/RDF/ Go to YYYYMM

Area Forecast Details

Sacramento Valley - Danny Kam (dkam@airquality.org)

Monday

- Early AM: N. wind develops before midnight; N. SV wind strengthen while S. SV wind weakens throughout the morning; weak delta wind turns toward SJV
- Late AM: NW5kt in Sac Cnty with outflow to the E foothills and NNW10-15kt in rest of the valley
- PM: Onshore flow makes it way into the delta, countered by N. wind and turns SE; N. wind dies down to below 5kt for most valley locations by late afternoon, outflow toward SE
- Evening: Onshore flow decreases but reaches Sac Cnty at night, breaking the brief period of stagnation
- N. Bay tracer shows most of emission heads toward SJV
- PBL below 500ft in AM; 4,000 to 6,500ft in PM
- MBL 500ft and below
- Mostly clear, cirrostratus (26Kft) leaving area in the AM
- Max aftn temp: 32C/89F; good air quality

Tuesday

- Early AM: Downslope flow strong in some areas but weak in Sac Cnty due to countering from weak onshore flow
- Late AM: Late N. wind remains over the western edge of valley, Sac Cnty remains calm until late afternoon, foothills area light and variable as it switches from downslope to upslope flow

- Afternoon: Onshore flow from E. Bay begins to reach lower Sac Cnty in late aftn, but majority of flow turns toward SJV; weak upslope from downtown to T0 and T1 throughout the afternoon
- [N. Bay tracer](#) shows emission moves into the Valley in the early AM, disperse, moves offshore in late AM, and then move back into Valley in the late afternoon
- Few high cirrus in the day, possibly altostratus (23Kft) at late night
- PBL below 500ft in AM, around 4,000ft in PM
- MBL 500ft and below
- Max aftn temp: 33C/91F, moderate air quality

Wednesday

- Light wind in the morning, much stronger onshore flow in the afternoon compared to Monday or Tuesday
- Cirrus/cirrostratus lingers, altostratus (21.5Kft) returns at night
- Max aftn temp: 30C/86F, good air quality

Sacramento Trajectory (Mon)

Sacramento Trajectory (Tue)

San Joaquin Valley - Shawn Ferreria (Shawn.Ferreria@valleyair.org)

Sunday June 20

Surface Winds: The surface observations this morning show light NW wind flow to calm conditions throughout the SJV. The wind profilers show light northwesterly wind flow up to 3,000 feet, turning from the south above. The OZ CANSAC shows light NW flow throughout the SJV. The Delta, Pacheco and Altamont passes are shut-off by the north to northwesterly flow from SAC Valley. Weak onshore flow will begin around 3Z tonight, with light and variable winds developing over the rest of the SJV. Outflow will be toward the Deserts and SLO.

Boundary Layer Mixing: Maximum boundary layer mixing depths will be between 2,500 to 5,000 feet this afternoon.

Air Quality: Good to Moderate ozone air quality is expected across the SJV.

Monday June 21

Surface Winds: CANSAC shows northwesterly winds continuing to block flow through Pacheco, Altamont, and the Delta during the morning hours. Onshore flow will increase earlier in the day (by 0Z) compared to Sunday, with light to moderate northwesterly winds continuing across the rest of the District.

Boundary Layer Mixing: CANSAC indicates that mixing depths should improve to 3,000 feet to 5,000 feet across the SJV.

Air Quality: Good to Moderate ozone air quality is expected across the SJV.

Tuesday June 22

Surface Winds: CANSAC shows very light Pacheco, Altamont, Delta inflow in the morning. Light to moderate onshore flow will strengthen during the afternoon hours. Surface valley wind flow will be thermally driven. In the southern SJV, light southeasterlies, with light and variable winds in the northern SJV. With afternoon heating, with the winds will strengthen from the northwest.

Boundary Layer Mixing: CANSAC indicates that maximum boundary layer mixing heights will range from 2,500 to 5,000 feet.

Air Quality: Good to Moderate ozone air quality is expected across the SJV. USG possible over the south end of the SJV.

Wednesday June 23 and Thursday June 24

Surface Winds: Surface wind flow in the SJV will be mainly thermally driven, with light onshore flow conditions continuing through the forecast period.

Boundary Layer Mixing: Boundary layer mixing depths will remain steady through the period under slightly stronger high pressure conditions.

Air Quality: Expected to have Good to Moderate ozone, with USG ozone possible in the southern SJV.

Potential Targets for next Flight Day

The LLNL prescribed burn SW of Tracy is scheduled for tomorrow, given that they are within their prescription.

Central Coast -

(NO FORECAST TODAY)

SoCal Coastal Waters -

(NO FORECAST TODAY)

South Coast Basin -

(NO FORECAST TODAY)